



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: STRAUVEN, Yvan  
GAY, Bruno

Serial No. 09/936,531

Group: 1746

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Examiner: Crepeau, Jonathan

For Centrifugally atomized zinc alloy powder for alkaline batteries

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA. 22313-1450

DECLARATION UNDER 37 C.R. 1.132

I, Christophe Henninot, declare as follows.

1. I am a technical member of the scientific team that has developed the centrifugal atomization process for zinc powders within the company Umicore and has filed a demand for patent towards the US patent office.
2. A study was conducted under my direction and guidance to determine the 'aspect ratio' of two Zn alloy powders, one of which was made by centrifugal atomization in an oxygen free atmosphere (here called Powder Nr 7), the other one in an atmosphere with 0.25% oxygen (Powder Nr 15). Both powders had a mean particle size of +/- 200 micron. The aspect ratio is defined as the maximum diameter of a particle divided by its minimum diameter, being equal to 1 when the particles are spherical, <1.30 when the particles are close to spherical, and >1.50 for particles being far from any spherical shape.
3. In the experiment the mean aspect ratio of the particles of Powder Nr 7 was 1.29; and the mean aspect ratio of Powder Nr 15 was 1.61. This is illustrated by the pictures that are annexed, where the effect is shown in a very convincing manner. I conclude that Zn alloy powders made by centrifugal atomization in a protective atmosphere do not present a spherical shape or a shape close to that of a sphere when the oxygen content exceeds 0.2%.
4. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both,

under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-referenced application and any patent issuing thereon.

Date: September 29, 2006

A handwritten signature in black ink, appearing to read 'Christophe Henninot', with a stylized, cursive script.

Christophe Henninot